EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

David S. Lee (Reg. No. 38,222) on 2/9/10.

The claims in the application have been amended as follows:

1.   **(Currently Amended)**   A job scheduling management method for managing

schedules of jobs allocated to a plurality of computers connected through a network, comprising

the steps of:

monitoring a performance state of a resource of a computer, included in said plurality of

computers, to which said jobs have been allocated,

wherein said performance state includes first information indicating at least one of

a usage rate of a Central Processing Unit (CPU) included in said computer, an amount of

memory being used in said computer, an amount of empty space on a disk storage device

included in said computer, an average processing time for the disk storage device, and an

average query processing time for a database application being executed by said

computer;

determining if said performance state meets a predetermined condition,

wherein the determining is based on how many times said usage rate of said CPU

exceeds a predetermined usage rate;

if said performance state meets said predetermined condition, detecting a job, of said jobs

allocated to said computer, that is uncompleted at a time when said predetermined condition is

met;

detecting a resource that is available to execute said detected uncompleted job based on

second information concerning resources required for executing said detected uncompleted job,

wherein said second information includes an inter-resource distance which is a

cost value taken between an execution computer and resources of said plurality of

computers, respectively when the execution computer of said computers uses an available

resource included in a plurality of resources usable by said computers, the cost being

defined as a value representing efficiency for use of said resources;

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allocating said detected uncompleted job to said detected resource;

managing information indicating correspondence between said job and a time when said

job is to be finished and information indicating a time passed in executing said job; and

determining that said predetermined condition is not met and allocating the uncompleted

job of said jobs allocated to said computer to another computer if said management computer

predicts that said job is not finished in the time when said job is to be finished from the

performance state of said computer that executes said job and said time required for executing

said job.

2. **(Canceled)**

   3. **(Currently Amended)**   A job scheduling management method in a management
computer for allocating jobs to a plurality of computers connected through a network and
managing a schedule of each of said jobs, comprising the steps of:

   managing first information indicating correspondence between a job and a computer to
which said job is allocated, second information indicating one or more resources required for
executing said job, and third information indicating one or more resources to be used by each of
said computers;

   monitoring a performance state of a resource of said computer to which said job is
allocated,

         wherein said performance state includes information indicating at least one of a
   usage rate of a Central Processing Unit (CPU) included in said computer, an amount of
   memory being used in said computer, an amount of empty space on a disk storage device
   included in said computer, an average processing time for the disk storage device, and an
   average query processing time for a database application being executed by said
   computer;

   determining if said performance state meets a predetermined condition,

         wherein the determining is based on how many times said usage rate of said CPU
   exceeds a predetermined usage rate;

   detecting an uncompleted job among said jobs allocated to said computers using said first
information;

extracting one or more resources required for executing said detected uncompleted job

using said second information,

wherein said second information includes an inter-resource distance which is a cost value

taken between an execution computer and resources of said computers, respectively when the

execution computer of said computers uses an available resource included in a plurality of

resources usable by said computers, the cost being defined as a value representing efficiency for

use of said resources;

extracting a resource among said plurality of computers that is available to use said

extracted resources using said third information;

allocating said detected uncompleted job to said extracted other resource;

managing information indicating correspondence between said job and a time when said

job is to be finished and information indicating a time passed in executing said job; and

determining that said predetermined condition is not met and allocating the uncompleted

job of said jobs allocated to said computer to another computer if said management computer

predicts that said job is not finished in the time when said job is to be finished from the

performance state of said computer that executes said job and said time required for executing

said job.

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4. **(Previously Presented)** A job scheduling management method as claimed in claim 3,

wherein, the allocating includes rescheduling said job and other jobs having been already

allocated to said extracted other resource.

5. **(Previously Presented)** A job scheduling management method as claimed in claim 3, further comprising the steps of:

included in the allocating detecting an uncompleted job of said jobs having been already allocated to said extracted other resource using said first information;

extracting one or more further resources required for executing said detected uncompleted job using said second information;

extracting a further computer that is available to use said extracted further resources for said extracted other computer using said third information; and

allocating said detected uncompleted job to said extracted further computer.

6. **(Original)** A job scheduling management method as claimed in claim 3, wherein said management computer allocates one or more jobs to itself.

7. **(Canceled)**

8. **(Previously Presented)** A job scheduling management method as claimed in claim 3, wherein the allocating includes allocating said detected uncompleted job to a plurality of other computers among said plurality of computers according to one or more resources required for executing said job.

9. **(Currently Amended)** A job scheduling management computer for allocating jobs

to a plurality of computers connected through a network and managing schedules of said jobs,

comprising:

management means for managing first information indicating correspondence between a

job and a computer to which said job is allocated, second information indicating one or more

resources required for executing said job, and third information indicating one or more resources

to be used by each of said computers;

monitoring means for monitoring a performance state of a resource of said computer to

which said job is allocated,

wherein said performance state includes information indicating at least one of a

usage rate of a Central Processing Unit (CPU) included in said computer, an amount of

memory being used in said computer, an amount of empty space on a disk storage device

included in said computer, an average processing time for the disk storage device, and an

average query processing time for a database application being executed by said

computer;

means for determining if said performance state meets a predetermined condition based

on how many times said usage rate of said CPU exceeds a predetermined usage rate;

means for detecting an uncompleted job among said jobs allocated to said computers

using said first information, and extracting one or more resources required for executing said

detected uncompleted job using said second information,

wherein said second information includes an inter-resource distance which is a

cost value taken between an execution computer and resources of said computers,

respectively when the execution computer of said computers uses an available resource included in a plurality of resources usable by said computers, the cost being defined as a value representing efficiency for use of said resources;

means for extracting another resource among said plurality of computers that is available to use said extracted resources using said third information, and allocating said detected uncompleted job to said extracted other resource;

means for managing information indicating correspondence between said job and a time when said job is to be finished and information indicating a time passed in executing said job; and

means for determining that said predetermined condition is not met and allocating the uncompleted job of said jobs allocated to said computer to another computer if said management computer predicts that said job is not finished in the time when said job is to be finished from the performance state of said computer that executes said job and said time required for executing said job.

10.   **(Currently Amended)**   A computer-readable storage medium storing a job scheduling management program for, upon being executed by a plurality of computer, tangibly performing functions including allocating jobs to said computers which are connected to each other through a network and are used by a management computer for managing schedules of said jobs, said job scheduling management program comprising:

a function of managing first information for indicating correspondence between a job and a computer to which said job is allocated, second information indicating one or more resources

required for executing said job, and third information for indicating one or more resources to be used by each of said computers;

a function of monitoring a performance state of a resource of said computer to which said job is allocated,

wherein said performance state includes information indicating at least one of a usage rate of a Central Processing Unit (CPU) included in said computer, an amount of memory being used in said computer, an amount of empty space on a disk storage device included in said computer, an average processing time for the disk storage device, and an average query processing time for a database application being executed by said computer;

a function of determining if said performance state meets a predetermined condition based on how many times said usage rate of said CPU exceeds a predetermined usage rate;

a function of detecting an uncompleted job of said jobs allocated to said computers using said first information;

a function of extracting one or more resources required for executing said detected uncompleted job using said second information,

wherein said second information includes an inter-resource distance which is a cost value taken between an execution computer and resources of said computers, respectively when an the execution computer of said computers uses an available resource included in a plurality of resources usable by said computers, the cost being defined as a value representing efficiency for use of said resources;

a function of extracting a resource among said plurality of resources that enables to use

said extracted resources using said third information;

a function of allocating said detected uncompleted job to said extracted other resource;

a function of managing information indicating correspondence between said job and a

time when said job is to be finished and information indicating a time passed in executing said

job; and

a function of determining that said predetermined condition is not met and allocating the

uncompleted job of said jobs allocated to said computer to another computer if said management

computer predicts that said job is not finished in the time when said job is to be finished from the

performance state of said computer that executes said job and said time required for executing

said job.

11. **(Previously Presented)** A job scheduling management method as claimed in claim

1, wherein the inter-resource distance is renewed by the operating performance of the resource

and the execution computer, and the operating performance is detected at the time when a

manager computer of said computer instructs a new agent of the execution computer after the

new agent is registered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH TANG whose telephone number is (571)272-3772. The examiner can normally be reached on 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/   /Kenneth Tang/
Supervisory Patent Examiner, Art Unit 2195   Examiner, Art Unit 2195